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EXAMINER

SONG, SARAH U

ART UNIT

PAPER NUMBER

2874

DATE MAILED: 11/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/902,883

Applicant(s)

RUAN ET AL.

Examiner

Sarah Song

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 28 August 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

### **DETAILED ACTION**

1. Applicant's communication filed on August 28, 2003 has been carefully studied by the Examiner. The arguments advanced therein, considered together with the amendments made to the claims, are persuasive and the rejections based upon prior art made of record in the previous Office Action are withdrawn. Claims 1-4 have been amended. Claims 1-20 are pending. The declaration filed on August 28, 2003 has been approved by the Examiner.

#### ***Claim Objections***

2. Claims 1, 4, 5 and 13 are objected to because of the following informalities: In claim 1, line 4, Examiner suggest changing "said at least one optical input" to "said optical input" to provide proper antecedent basis for the limitation. Claim 4 recites, "The device of claim 3 1". For purposes of examination, Claim 4 will be examined as depending from both claims 3 and 1. In claim 5, Examiner suggests changing "one of said cantilevers" to "said cantilever—and changing "one of said plurality of mirror elements" to "said at least one mirror element— to provide proper antecedent basis for the limitations. In claim 13, Examiner suggests changing "said mirror elements" to "said at least one mirror element— to provide proper antecedent basis for the limitation. Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless—

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 2, 8, 12, 14-16 and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Athale (U.S. Patent 6,501,869 newly cited). Athale discloses a device for transmitting optical signals, said device comprising: an optical input accepting said optical signals 1910, 1920 and 1930; a control device directing said optical signals between said optical input and an optical output, the control device including at least one mirror element 1911 having a cantilever (column 5, line 21 and column 11, line 21); and a channel 1916 and 1946 located between said optical input and said optical output confining said optical signals to a predetermined path. The mirror element 1911 is configured to reflect said optical signal within said device as shown in Figure 19. Athale also discloses the wall of the channel to be reflective (column 8, lines 6-11) and discloses a channel mirror 1941 configured to receive said optical signal 1910 (reflected as beam 1920) and to direct said optical signal through said channel. Likewise, the method is inherent as setting forth requisite steps for the operation of the device of Athale. It is noted that the cantilever is switched such that said reflective portion is placed in the path of said optical signal when said optical signal is desired at a first output on a first one of the predetermined paths, and such that said reflective portion is placed out of the path of said signal when said optical signal is desired at a second output on a second one of said predetermined paths (see Figure 13c for example). It is additionally noted that the conducting step comprising directing said optical signal (e.g. 1940) away from said reflective wall (e.g. wall of channel 1916) with a channel mirror (e.g. 1941). It is noted that the embodiment of Figure 19 is a switch.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 3-7, 9-11, 13, 17, 18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Athale in view of Judy et al. (previously relied upon). Athale discloses the claimed invention as discussed above, but does not specifically disclose the cantilever having a magnetically sensitive portion configured to be switched by one of a plurality of electromagnetic signals, wherein each of said electromagnetic signals induce a magnetic torque in the cantilever, wherein said plurality of electromagnetic signals comprise magnetic signals generated by a plurality of conductors, wherein said plurality of electromagnetic signals comprise electrostatic signals generated by a plurality of electrodes or wherein said reflective wall comprises one of the group consisting of aluminum, gold, silver and chromium.

7. Reflective coatings consisting of one of aluminum, gold, silver and chromium are well known in the art. One of ordinary skill in the art would have found it obvious to provide the reflective wall of Athale with any well-known reflective coating, since applicant has not disclosed that the particular reflective material solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with any well known reflective coating.

8. Judy et al. disclose a plurality of mirror elements or reflectors (102), i.e. magnetic plate with a mirror coating (column 5, lines 15-16), each comprising a cantilever having a magnetically sensitive portion and a reflective portion, wherein each of said cantilevers is configured to be switched between a first state and a second state by one of a plurality of electromagnetic signals (i.e. magnetic field 118) consisting of magnetic signals generated by

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conductors 302 or electrostatic signals generated by electrodes 112 and 114. It is noted that the magnetic field 118 induces a torque in the cantilever. One of ordinary skill in the art would have found it obvious to incorporate the magnetic actuation of Judy et al. into the switch of Athale since the deflectors of both Athale and Judy et al. are operationally similar with regards to movement. One of ordinary skill in the art would have been motivated to make such a modification to combine the features of electrostatic forces and magnetic forces within the switching arrangement of Athale since the actuation scheme of Judy et al. provides superior and compact arrays of microactuated structures that can be batch-processed (column 2, lines 37-44).

***Response to Arguments***

9. Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

10. Any inquiry concerning the merits of this communication should be directed to Examiner Sarah Song at telephone number 703-306-5799. Any inquiry of a general or clerical nature, or relating to the status of this application or proceeding should be directed to the receptionist at telephone number 703-308-0956 or to the technical support staff supervisor at telephone number 703-308-3072.

*Sarah Song*  
SUS

*John D. Lee*  
John D. Lee  
Patent Examiner